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# RISK TO RESILIENCE, A TRADE OFF BETWEEN DEVELOPMENT, ENERGY CRISIS AND CLIMATE CHANGE IN INDIA

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## ABSTRACT

We are in a constant vicious circle of disaster facing the challenge of dealing with the threat of climate change where various factors like disaster, response, recovery and repeat are acting and reacting on each other in such a way that the cause and effect are in persistent cycle. The climate change is no more a term but a reality which has made the ecosystem fragile causing frequent outbreaks of diseases which are further worsened by the massive urbanization mass displacement and geopolitical instability where each factor act and interact with each other in such a way that leads to reverberation of shocks, stresses and crisis at global level. The modern era also faces the challenge of hyper connectivity where problems like fuel crisis is faced and felt by all. But despite of all the apparent erratic evidence we have yet not prioritized the preventive measures but now it is a high time to move on the path from risk to resilience in order to break the vicious circle of disaster instigated by the evils of climate change. Even now after knowing the challenges and risk and the path to resilience we are persistently failing in mitigating the risk and developing adaptation. The major threats posed to the globe are increasing frequency of natural disasters and extreme weather events which is not only causing a loss of biodiversity and can also cause collapse of eco system. By 2033 the nexus, factors like biodiversity loss, pollution, climate change and socio economic drivers are going to cause a dangerous threat to the whole world. The pandemic and the invasion of Ukraine and Palestine have led to escalate to prices of food and energy across globe. The cost of living has raised to extent that it ranks as one of the potential global risk and is apparently visible in various economic across globe in short term. The erratic and extreme natural events and weather conditions are mostly posing threat to low and middle income countries and especially to the coastal lines of developing nations that includes Latin America , Africa, South East Asia including India. In approximately 10 countries of the world these frequent and erratic weather change are looming as a severe threat in upcoming decade. According India's Atlas on weather disaster prepared by centre for science, India itself is witnessing extreme weather events and 2022 out of total 365 days, 291 days i.e between January 1 and November 30, 2022 various extremes variations in weather conditions were recorded. The cause being attributed to the increased green house emissions caused by humans and intense climate and weather strains across nations. At present the level of carbon dioxide, methane and nitrous oxide in atmosphere has reached to a record high level on emission trajectories and these levels are making it quite difficult to limit the global warming at 1.5 degree Celsius and this makes us a failure in mitigating the effects of climate change. India after being announced as the most populous country in the world also faces the looming threat of rising food and energy crisis and meeting these challenges are causing frequent loss of bio diversity and collapse of ecosystem at various places in the country and this is considered to be one of the major threat over the next decade by the nation. This threat would be so severe that the techniques used for adaptation would fail to serve to mitigate the effects of climate change in the country. This is not only a national crisis but a global risk and to address these challenges there is a need of political will and co-operation among global leaders so that human development and climate change can be addressed simultaneously.

**KEYWORDS:** Climate Change, Risk and Resilience, Natural Disaster, Global Aarming

## INTRODUCTION

India is witnessing a humongous growth and has maintained its identity as one of the fastest growing economies of the world as per its GDP growth rate. India's GDP growth rate was 8.7% as compared to global GDP growth rate which was 3. 6 % in 2021-22 according to the reports of IMF. India has replaced United Kingdom and is the 5th largest economy of the world. The future of Indian economic growth is very positive and it is expected that India may overtake Japan as Asia's second largest economy by 2030 and will hold 3rd position in the world ranking in terms of nominal GDP.

Despite of all these positive attributes of Indian economy we still have a turbulent Path ahead when it comes to fuel this developmental plan amidst the problem of energy crisis and climate change. It's a huge challenge for Indian economy to move on the trajectory ahead keeping in mind meeting global growth standards within the limitations of sustainable measures. The way ahead is definitely going to be quite challenging as now we have started to witness apparent changes in climate and energy crisis is also a major concern. The question is are we ready to handle this paradoxical situation where on the one and we are having all the necessary ingredients to move ahead on the developmental path and secure our position in global economic ranking and on the other hand we are facing the challenge of energy crisis, while we are still depending on coal

as the most used energy resource that is available to foster our growth. Besides we also have to meet and match the standards of Paris Summit and limit our use of fossil fuel, and depend more and more on renewable and sustainable sources of energy. If we see our present situation we find that, out of all the sources of energy on earth coal has a long history and a deep controversy is associated to its existence in the process of fuelling the phases of development, serving the economy's energy requirements and alternatively contributing to the climate crisis on a larger perspective. Coal has been considered as one of the earliest source of energy and it has also proved to be a reliable performer over time but there are various concerns associated to its usage especially when it comes to tackling with problems like air pollution and climate change.

The problem of global warming leading to climate change is quite evident with an apparent shift in weather conditions across globe. More than 1 in 5 of us will be living in extreme temperature by 2100 and more than 1 billion people would face the threat of migration if the humanity doesn't realise the threat of rising temperature and climate change and keep on behaving and moving in the same pace of energy use pattern. As per the study done by University of Exeter it was found that the average temperature with extreme heat has increased to $29^0$C and that can likely increase the temperature to exceed $40^0$C for almost 75 days each year. At present 0.9% of the total world population are surviving in extreme heat and according to scientists if we move on with the same pace of climate change we are going to face $2.7^0$C of increase in temperature by 2100 which may leave 22% of the global population living in extreme heat i.e approximately 2 billion of the total population. But if we meet and agree to the limit set during the Paris agreement i.e $1.5^0$C then we can also set to work on limiting the suffering of extreme heat to only 400 million people. But if the average temperature rises to $2.7^0$C then the worst affected country would be India in terms of population as more than 600 million people in the country would face the thrash of extreme rise in temperature and in terms of area Brazil would be the country exposed to extreme heat.

At present we are just $1.2^0$C warmer than pre industrial era and Paris agreement has set the target to limit warming at $1.5^0$C which is although possible but becoming extremely unlikely with most of the developing countries including India still relying on conventional sources like coal for their energy requirements and have still to taste the fruit of becoming industrialised developed nation that makes it 6% more likely that the world will fail to limit the heat to the targeted limit of $1.5^0$C

To curb the temperature to the prescribed limit the countries have to start limiting the use of $CO_2$ today. The Prime Minister Modi in Cop26 has promised the target of NET Zero by 2070. By 2030, 50% of India's energy needs will be fulfilled through renewable sources. But on the other hand there are 55 new coal mines opened in the country. The forest conservation Act has also been diluted on the grounds of providing ease of doing business in the country. Following the target of PM Modi by 2024, 100 kilo tons of coal annually is to be produced or extracted by Indian mines ( Adani, Birla Group and Vedanta are some big names working in this direction).

Coal is the single biggest contributor to climate change which generates half of the world's carbon emissions and India is the second biggest consumer of coal after China. 70% of our energy requirement is fulfilled through coal energy. The impact of which could be seen through the highlights and threat pointed out on the basis of pollution and Air Quality Index. Three Indian cities, including Delhi is among world's ten (10) most polluted cities of the world. Despite of this coal plants worth 4.5 lakh crores are being promoted in India. Government has been repeatedly pushing back the deadlines to adopt stricter emissions standards.

The other aspect of the running of these coal mines are the damage caused to forests flora and fauna of that area which has always been a source of food, livelihood and also worked as cleaning agents of green house gases which basically is necessary to ensure unhindered growth and development in the country. Out of all the sources of energy coal is considered as a major support for development therefore India targets 1.2 billion ton coal production domestically by 2023-24. Coal is the black diamond of the country which on one hand has to provide the back up for development in the country and on the other hand faces the challenges and threat of global warming which is quite apparent through erratic pattern of the weather in the country.

Coal contributes to following basic infrastructure of the country.

Coal to the power Industry: The national electric grid n India has an installed capacity of 393.389 GW as of 31st December 2021. Coal alone accounts for more than half i.e 55% of energy need of India. India witnessed a power crisis in 2021 mainly due to coal crisis in the country. The nation also witnessed the same crisis in 2018. The Hydroelectricity covers 13% of power need of the country, Gas contributes to 7.2% of power, diesel contributes to 0.24% of power need and the renewable energy covers 21% of the country's requirement. Hence the overall energy requirement of the country is mostly met by coal energy keeping the renewable energy at second and hydropower at third place. This truly shows that we are still not prepared for the developmental plans to be fuelled by sustainable sources of energy and cause lesser negative impact on the ecological health rather we being the 5th fastest developing economy of the world is about to face a massive challenge in terms of treading on the growth path facing not only the crisis of energy but also crisis of climate change.

**CONCLUSION**

This climate change is a highly concerning issue and has turned into climate crisis. It helps to understand that our earth health is in danger and the weather pattern is changing with souring temperature in summers, heavy floods, frequent drought and atmospheric anomalies. The major factor which is human induced play a major role and fossil fuel contributes to it in maximum as it contributes in heat trapping emissions. It has a grave social and economic impact. Moving ahead in this scenario is certainly going to be very difficult for India. India may face trillions of dollars of loss due to climate change. Different reports published on different agendas by international agencies have focussed on environmental impact

assessment. In 2021 study as per the Global Risk Index it was revealed that India was termed as the 7th most affected country with climate change impacts. Apart from India other 6 most effected countries were all poor like Mozambique, Zimbabwe, The Bahamas, Japan, Malawi and Afghanistan. Nearly 11,000 extreme weather events happened between 2000 and 2019 which caused an economic loss worth $ 2.56 trillion in terms of purchasing power parity, and has caused 4.75 lakhs of human resource. The monsoon is frequently causing flood, landslides, and tropical cyclones with extremely severe cyclone causing huge economic loss and loss to human resource. Most of the effected countries due to these climate changes are developing or under developed and are least prepared to face the brunt of this emerging crisis of climate change. India has witnessed a huge economic loss due to flood and landslides alone this year and has caused huge deviation in livelihood pattern and health scenarios. The research conducted b Deloitte Economic Institute has also warned India of further economic losses worth $ 6 trillion in major sectors like services, manufacturing, tourism, construction and transport which will account for over 80% of GDP, if we fail to take firm and concrete steps in dealing with the effects of climate crisis by 2050. According to Financial Times, 'the erratic weather pattern and global warming may cause a huge monetary loss if the temperature increases by 3 degree Celsius by 2070. We only have narrow window trajectory of 10 years to correct our path else we may face a huge loss of $ 35 trillion over next 50 years according to 'The Economic Times'.

Now this is a high time to realize our problem and turn to opt for sustainable measures as a solution to nurture the plan of development. Although we have already reduced 21% of its emission out of committed 33-35%, we have also achieved 38% of electricity generation from non-fossil fuel as against the target of 40%. In the non fossil fuel energy sources, renewable, hydro and nuclear plants is combined together, but the third component we still lag behind and that is to increase the forest cover in the country. India still needs to increase the forest cover area which is equivalent of 2.5-3 billion tonnes of carbon dioxide. India is also moving ahead in boosting up its renewable energy resources and has high scope on solar and thermal energy sources. At national and state level various actions has been taken like ' India Cooling Action Plan, 'Efficient Building Plans at state level',' Fame India Phase –II' is also one such scheme of Central Government which boost the production of electrical vehicle. India has also signed various alliance at international level like, ' International Solar Alliance', International Coalition for Disaster Resilient Infrastructure', and 'Leadership Group for Industry Transition' to foster the developmental plans on sustainable pattern and also be ready to combat the loss due to climate crisis. Besides an 'Apex Committee for Implementation of Paris Agreement', has also been formed to ensure proper implementation of Paris Agreement 2015 . This committee is working with experts of 14 key areas and also ensuring and monitoring the climate action progress along in partnership with National Research Development Corporation( NRDC), Administrative Staff College of India, The Council on Energy, Environment and Water (CEEW), Indian Institute of Public Health Gandhinagar, The Self Employed Women's Association and The Energy and Resource Institute (TERI). Along with the strategies of employing sustainable measures of development it's also necessary to generate social awareness to create massive impact.

**REFERENCE**


1. Ajeet Kumar (2015) "How falling oil prices impact India's economy" Tuesday, January 20, 2015 - 12:59, available at http://zeenews.india.com/exclusive/how-falling-oil-prices-impact-indias-economy_1531868.html
2. Anandan M. and Ramaswamy S. (2014) "Business in Solar Energy Technologies: Scope and Opportunities in India" International Journal of Business Intelligence and Innovations, Vol.2, No.1, pp.40-46.
3. Anandan M. and Ramaswamy S. (2015) "Global Oil Market: Macro Economic Scenario" Global Journal for Research Analysis, Vol.4, No.9, September, pp.53-57.
4. Anandan M., Ramaswamy S. and Sridhar S. (2013) "Crude Oil Price Behavior and Its Impact on Macroeconomic Variable: A Case of Inflation" Language in India, Vol. 13, No.6, pp.147-160.
5. BP (2021) "Statistical Review of Global Energy", available at, www.bp.com/genericarticle.do
6. Central Statistics Office (2018) "Energy Statistics" Twenty Fifth Issue, Central Statistics Office Ministry Of Statistics And Programme Implementation Government Of India New Delhi.
7. Central Statistics Office (2020) "Energy Statistics", Central Statistics Office Ministry Of Statistics And Programme Implementation Government Of India New Delhi.
8. EIA (2014) "Liquid Fuels and Natural Gas in the Americas" Independent Statistics & Analysis, U.S. Department of Energy, Washington, DC 20585, p.5
9. Garg (2012) "Energy Scenario and Vision 2020 in India" Journal of Sustainable Energy & Environment vol.3, pp.7-17.
10. IEA (2014) "Global Energy Outlook 2014", International Energy Agency; Paris
11. Lingyu Yan (2012) "Analysis of the International Oil Price Fluctuations and Its Influencing Factors" American Journal of Industrial and Business Management, Vol.2, pp.39-46
12. Mukhopadhyay and Chakraborty (1999) "India's Energy Consumption Changes during 1973/74 to 1991/92" Economic Systems Research, Vol.11, No.4, pp.423-438.
13. Nkomo JC (2006) "Crude oil price movements and their impact on South Africa" Journal of Energy in Southern Africa, Vol.17 No.4, pp.25-32.
14. Sana Samreen (2014) "Global oil industry and Indian economy: An analyses from 1970s upto global recession (1970-2008)" International Journal of Interdisciplinary and Multidisciplinary Studies (IJIMS), 2014, Vol 1, No.8, 67-75
15. Stern, D. (2011) "The Role of Energy in Economic Growth", Annals of the New York Academy of Sciences No. 1219, pp. 26-51.
16. The Economic Times (2015) "India to benefit from falling oil prices" January 12, 2015, p.10
17. WEO (2019) Global energy Outlook, IEA Publications, France, www.globalenergyoutlook.org
18. WEO (2020) Global Economic outlook, In Washington, D.C. (EST), pp.1-4